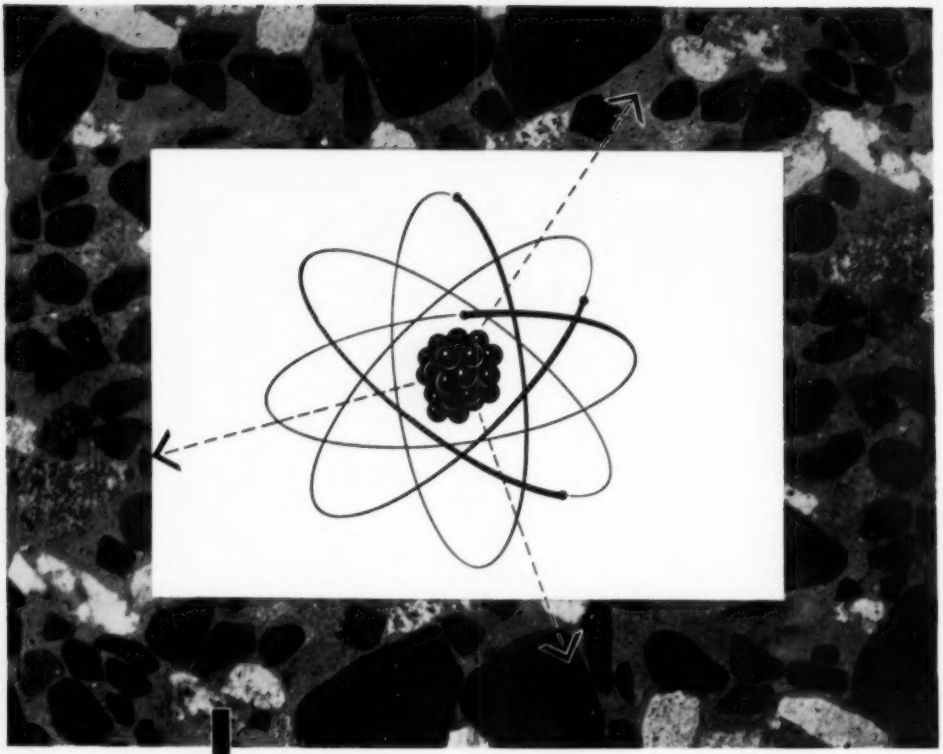
ACI News Letter

Vol. 28, No. 2 JOURNAL of the AMERICAN CONCRETE INSTITUTE August 1956



"heavy" concrete for reactor shields

High-density concrete, an efficient and practical radiation shielding material, is destined for wide use in nuclear reactors.

The high density results from the use of heavyweight aggregates and affords 1½ to 2 times more radiation protection than normal weight concrete of equal thickness. Its higher unit cost is offset by overall cost savings, which on one project amounted to $7,000,000!

INTRUSION-PREPAKT materials and methods are a proved solution for placing high-density concrete in massive, complex shields having a maze of obstructions. High-density aggregates are carefully preplaced to assure uniform density without segregation. Consolidation with INTRUSION mortar produces a PREPAKT concrete structure free of radiation leaks. Densities to 300 lbs./cu. ft. and over can be achieved, usually at less cost than by conventional methods.

INTRUSION-PREPAKT experience in placing high-density concrete reactor shields qualifies it as the top organization to work with on such projects. You will deal with a firm that *specializes* in concrete construction and maintenance, *has* a complete field construction group and *offers* an engineering design service. For information, write: INTRUSION-PREPAKT, Inc., Room 779-O, Union Commerce Bldg., Cleveland 14, Ohio. In Canada: INTRUSION-PREPAKT, Ltd., 159 Bay St., Toronto, Ontario.

A new technical bulletin on "High-Density PREPAKT *Concrete" is now in preparation. We will be glad to send you a copy. Send a request on your letterhead, please.*

INTRUSION-PREPAKT, INC.

OFFICES IN PRINCIPAL U.S. AND FOREIGN CITIES

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ACI

News Letter Contents

August 1956

On the Cover—Autobahn bridge over the Teufelstal, Hermsdorf, Thuringia, Germany. With a span of 138 m, this is one of the longest structural arch bridges in Germany. Total bridge length is 256 m; bridge width: 22.4 m. Built 1936-38 by Gruen & Bilfinger AG.
—*Courtesy Deutscher Beton-Verein E.V.*

ACI Regional Meeting.... 3

New Women's Dormitory 5

Positions and Projects..... 6

Looking Ahead.....11

Errata 13

Who's Who

Subcommittee I, Committee 325 15

Phil M. Ferguson.....15

N. C. Ludwig and S. A. Ponce 15

C. L. Handa and O. P. Chadha 15

Cevdet Z. Erzen.....17

Myron L. Goral.....17

Honor Roll.....19

New Members.....20

Tools, Materials, Services 21

List of Advertisers.....26

Discussion 26

ACI Regional Meeting

To be held in Montreal

For the first time in its history, ACI will hold a regional meeting in Canada. Montreal will be host city for the ACI 9th Regional Meeting, Oct. 24-25, 1956, at the Sheraton-Mount Royal Hotel. The Institute last met in Canada in 1934, with the annual convention in Toronto.

Gerald Milsom, president, Metallicrete Floor Co., Ltd., heads the regional committee on arrangements; secretary is D. F. Nash, sales manager, Dewey and Almy Chemical Co.; treasurer is G. R. Rinfret, chief engineer and vice-president, Shawinigan Engineering Co.; technical program director is M. F. MacNaughton, vice-president, Mount Royal Paving and Supplies, Ltd., all of Montreal. Roger O. Beauchemin, Beauchemin, J. A. & Associates, Montreal, and Henri Isabelle, Canada Cement Co., Montreal, will be in charge of publicity.

Other committee members are: registration and entertainment: James H. Royds, Drew Brown, Ltd., and G. J. MacHutchin, Diamond Flooring, Ltd.; inspection trips: H. Fred Senez, Mount Royal Paving and Supplies, Ltd.; ladies committee: Byron T. Kerr, Warnock-Hersey Co., Ltd.; membership promotion: S. E. Acker, Creaghan and Archibald, Ltd.; educational contacts: J. F. Brett, Montreal Public Works Department; finance: H. C. Pearson, Dewey and Almy Chemical Co., and E. P. Hersey, Warnock-Hersey Co., Ltd.; E.I.C. representative: E. R. Smallhorn, consulting engineer; Toronto representative: D. O. Robinson, Canada Cement Co.; Ottawa representative: J. W. Lucas, Department of Public Works, Ottawa; Quebec City representatives: E. A. Dupuis, Public Works Department, Quebec, and E. Gilbert, Public Works Department, Government Buildings, Quebec; P.Q.A.A. representative: Colin H. Copeman; general committee: S. L. Burns, Don-

ald Inspection, Ltd.; L. H. Burpee, St. Lawrence Seaway Authority; A. L. Campbell, Canada Cement Co.; G. A. Campbell, Pentagon Construction Co., Ltd.; R. M. Doull, Preload Co. of Canada; Walter Griesbach, Foundation Co. of Canada, Ltd.; L. B. McCurdy, Dominion Structural Steel, Ltd.; W. L. Pugh, Aluminum Co. of Canada, Ltd.; W. McG. Gardner, Montreal Transportation Commission.

The program's technical sessions on October 24-25 will present papers on problems of particular interest to the northeastern states and eastern Canada. The following two days will be devoted to inspection trips. For the morning of October 26, trips are scheduled to different construction sites of the Montreal section of the St. Lawrence Seaway. The afternoon will feature visits to plants in the area, *e.g.*, cement mill, quarry, and concrete plants. An all day trip is scheduled October 27 to the international section of the St. Lawrence Seaway at the power development site at Barnhart Island where American and Canadian methods are being used side by side. On the way a stop will be made at the Beauharnois Powerhouse.

TENTATIVE PROGRAM

First Session—October 24

Effect of Sand Grading on Air Entrainment	Ecole Polytechnique
Heavy-Media Processing of Aggregates	I. D. Mackenzie
Scaling of Montreal Sidewalks	W. S. Weaver
Calibration and Use of Impact Hammers	N. G. Zoldners

Second Session—October 24

Prestressed Concrete	T. O. Lazarides
Prestressed Concrete	Curzon Dobell
Prestressed Concrete	Philip Benn
Lift-Slab Construction	W. Sefton

Third Session—October 25

Reinforced Concrete Investigation	McGill University
Bridge Design	Quebec Department of Public Works
Concreting Operations on St. Lawrence Seaway	St. Lawrence Seaway Authority

Fourth Session—October 25

SYMPOSIUM: Winter Construction

Moderator:	R. E. Heartz
Panel Members:	H. F. Cook, E. G. Swenson, G. Malby

Plans call for more papers in this discussion, but confirmation has not yet been received.

New federal building features reinforced concrete

A seven-story reinforced concrete office building for federal agencies in Huntington, W. Va., has been designed by the firm of C. E. Silling and Associates, Charlestown, W. Va., for the General Services Administration. The new building has been approved for construction under a lease-purchase arrangement at an estimated cost of $3,300,000.

Providing 140,000 sq ft of floor area, the building, of contemporary design, takes advantage of the potential economies inherent in simplicity. Materials, construction methods, and space planning result in an attractive appearance as well as lasting economies.

NEW WOMEN'S DORMITORY AT ST. LOUIS UNIVERSITY

A new eight-story women's dormitory is now under construction for St. Louis University. To achieve refinements in appearance and sharpness of detail, techniques were used that are uncommon in ordinary concrete construction.

The specifications included conditions such as optimum amount of air entrainment controlled within close limits, exacting gradations of coarse and fine aggregates, and the placing of steel reinforcement and controlling its position during concreting operations. The formwork was constructed of phenolic-resin surfaced plywood coated with form lacquer before concrete was placed, and recoated with the lacquer after five re-uses of the plywood.

Front view of St. Louis University women's dormitory shows exposed concrete frame and brick curtain walls. Special construction techniques eliminated the need for patching or rubbing surfaces of the architectural concrete. Column construction joints at floor lines were made an architectural feature by using beveled wood strips set into forms to create grooved joints

The formwork was constructed in accordance with details which prohibited the use of ties that extend through any exposed concrete member, to avoid the necessity for any patching. External corners of all columns and beams are square; no chamfer strips were permitted. At tops of walls, beams, and column tiers, wood strips were set into forms to obtain clear straight lines and true lines of demarcations between the masonry curtain walls and the architectural concrete. The concrete consisted of a 6-bag mix with a maximum of 6½ gal. of water per sack of cement and with a slump not exceeding 4 in. The placing of the concrete was carefully controlled, and to release air that usually collects at the surface of the forms, long spading tools made of 1 x 4-in. lumber were worked up and down gently in the concrete against the forms simultaneously with the concreting, but never more than about 18 in. below the level of any stage of the placing operation.

When a column placement was to be made on previously cast and hardened concrete columns, 3 in. thick concrete grout was first placed on the wire brushed surface of the column and concrete placed immediately. The grout consisted of the same mix as the concrete except that the amount of coarse aggregate was only

half of the required amount.

Columns were cast at the same time as the slab instead of the customary method of making beam and slab placement on hardened concrete columns. This was done to eliminate the customary construction joint in columns at the level of spandrel beam soffits. Construction joints in columns occur at floor lines and were made an architectural feature by using beveled wood strips set into the forms to create grooved construction joints. This method of casting columns has not caused any cracks due to shrinkage of the concrete.

The techniques produced architectural concrete that is acceptable without the need of any patching or rubbing of the surfaces. Surfaces are entirely free of honeycombing, and corners are clean, square, and true to line.

Leo A. Daly Co., Architects-Engineers, designed the building. McCarthy Brothers Construction Co. was general contractor.

Positions and Projects

H. J. Gilkey honored

H. J. Gilkey, who recently retired as head of the Department of Theoretical and Applied Mechanics, Iowa State College, Ames, was recently elected to honorary membership in the American Society for Testing Materials.

A past president of ACI, he is eminent in the field of research in engineering materials, especially concrete. He was a member of committees concerned with problems related to construction of several dams, including Hoover Dam. Prof. Gilkey is the author or co-author of several handbooks and manuals, as well as some 150 papers and discussions, dealing with concrete, engineering materials, and testing methods.

Gonnerman, Hubbard and McBurney receive awards

Among those honored at the ASTM 59th annual meeting in Atlantic City on June 17 were Harrison F. Gonnerman, Fred Hubbard, and John McBurney. They received ASTM Awards of Merit for outstanding committee work.

Mr. Gonnerman, engineering consultant, Oak Park, Ill., is the author of many reports on cement, concrete materials, reinforced concrete, and methods of testing. He was president of ACI in 1946, was elected to an honorary membership in 1951, and has twice received the ACI Wason Medal for noteworthy research.

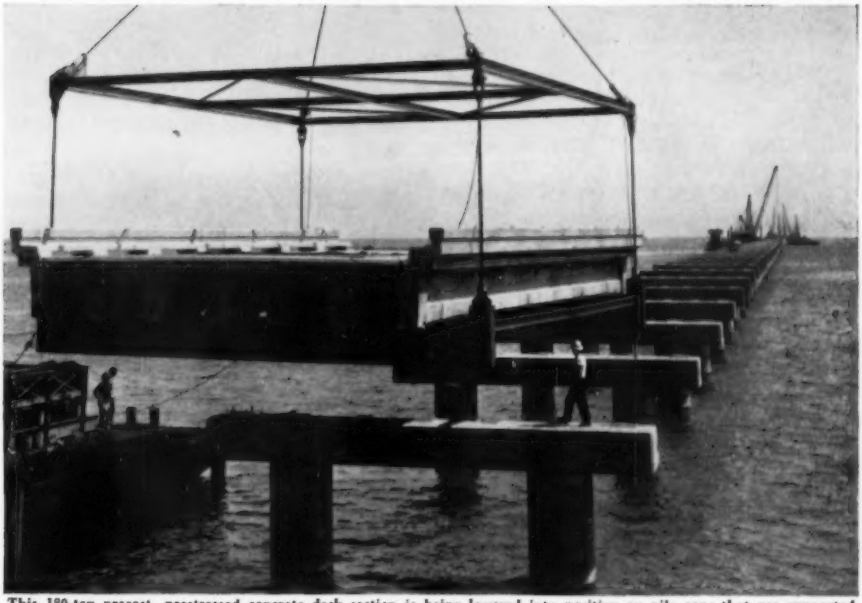
Mr. Hubbard has been consulting engineer for Standard Slag Co., Youngstown, Ohio, and affiliated companies since 1925 and during a greater part of that time has served as director of research for the National Slag Assn. He has been closely connected with the production and use of blast furnace slag as a commercial aggregate since 1907. He was a member of the ACI Board of Direction 1943-44.

Mr. McBurney, Silver Spring, Md., recently retired as consultant on masonry and masonry materials of the National Bureau of Standards, after 30 years of service. He has been an Institute member since 1937.

He first joined the Bureau staff in 1926 as research associate for the Common Brick Manufacturers Assn. In 1932 he became research associate for the Asphalt and Mastic Tile Assn., and since 1935 he worked directly for the Bureau.

Ship christened

Huron Portland Cement Co.'s latest self-unloading cement-carrying vessel, the steamer E. M. Ford, was christened July 24 at Detroit. Mr. Ford, for whom the ship is named, is chairman of the board of the Huron Portland Cement Co.



This 180-ton precast, prestressed concrete deck section is being lowered into position on pile caps that are supported on hollow 54" prestressed piles. There are 2,235 of these deck spans on the 24 mile causeway across Lake Pontchartrain near New Orleans.

Why They Used Plastiment in the World's Longest Highway Bridge...

Efficient single unit beam-and-deck design and economical mass production are outstanding features of this 24 mile causeway across Lake Pontchartrain. Each day eight 56 foot deck-spans are cast in a single bed containing pretensioned wires.

Plastiment Concrete Densifier is being used for these reasons:

UNIFORM HIGH QUALITY YEAR AROUND — During cooler weather the minimum quantity of Plastiment is used for highest structural quality. More Plastiment is added in the hot summer to keep water content and setting time of concrete constant. Cracking and crazing are entirely eliminated.

HIGH EARLY STRENGTH FOR PRESTRESSING — Initial retardation allows time for placement and consolidation of the entire unit (89 cubic yards) even in the hottest weather. After this retardation, Plastiment concrete gains strength rapidly. Steam curing for 15 hours accelerates this gain. At three days, strength averages well above 4000 psi.

ECONOMY — An economical 6½ bag concrete mix, with varying proportions of Plastiment, results in uniform high structural quality well above specifications. Ease of placement and compaction, a characteristic of low slump Plastiment concrete, reduces placing costs.

Engineers: Palmer and Baker, Inc.
Mobile, Alabama

Contractor: Louisiana Bridge Company —
A joint venture:
Brown & Root, Inc. — Houston, Texas
T. L. James Co., Inc. — Ruston, Louisiana

Write today for information on producing uniform concrete at all temperatures.

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Pittsburgh • Salt Lake City • Washington, D. C. • Montreal, Vancouver,
Canada • Panama City, Panama • Dealers in Principal Cities

Newmark heads department

Nathan M. Newmark, research professor of structural engineering, University of Illinois, Urbana, has been named head of the civil engineering department effective Sept. 1, 1956. Dr. Newmark is author of more than 90 papers in the fields of structures and applied mechanics, and has received numerous awards for his research contributions, including the 1949 ACI Wason Medal for "most meritorious paper." He succeeds W. C. Huntington, who served as head of the department for 36 years.

Dr. Newmark joined the Illinois faculty in 1930 and has been a full professor since 1943. In addition to his civil engineering responsibilities, he is chairman of the Digital Computer Laboratory, an important graduate research facility.

An ACI member for more than 20 years, he is concerned particularly with structural analysis and design, including elasticity theory, numerical methods, arch bridges and concrete bridge floors, and the effects of bombs or earthquakes on various types of structures. He is chairman of ACI-ASCE Committee 321, Design of Reinforced Concrete Slabs.

He has received both the Croes and the Moisseiff awards from the American Society of Civil Engineers. Dr. Newmark is chairman of the applied mechanics division of the American Society of Mechanical Engineers and chairman of the engineering mechanics division of the American Society of Civil Engineers. In June, 1955, Rutgers University conferred on him the honorary degree of Doctor of Science.

Mercer joins new corporation

L. Boyd Mercer has left his position as chief engineer of Ready Mixed Concrete, Ltd., Sydney, Austalia, to become chairman and managing director for Concrete Distributors Proprietary, Ltd., a new company organized for the production and distribution of ready-mixed concrete. The plant is located in Burnley, Australia.

Mr. Mercer received the ACI Wason Medal in 1933 for a paper entitled "Sliding Form Work."

PCA forms fire research section

The Portland Cement Assn. has announced formation of a fire research section, headed by Clifford C. Carlson. The new section, established within the research department of the association's research and development division, will eventually be housed in one of two new buildings planned for construction at the organization's research and development laboratories in Skokie, Ill.

Mr. Carlson is currently engaged in planning of the Fire Research Center. Together with a structural development laboratory, the building is a part of a $1.8 million construction program aimed at providing facilities for the association's expanded research program on concrete structures and the fire resistance of concrete. Completion of the buildings is scheduled for 1957.

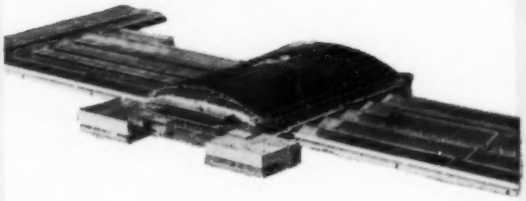
Replacing Carlson as manager of the products and applications section will be Joseph J. Shideler, who for the past 3 years has served as development engineer in the section.

Peterson appointed

Gilbert N. Peterson, plant engineer at the Universal, Pa., plant of Universal Atlas Cement Co., has been appointed assistant plant manager at the Buffington, Ind., plant.

Mr. Peterson began his employment with Universal Atlas in 1950 as mill practice engineer at the Buffington plant. In 1951, he was made maintenance engineer at Buffington and in June, 1952, he was promoted to plant engineer at the Universal plant, which position he has held until his present appointment.

The New Trend In Roof Design



740,000 sq. ft. of perlite insulating concrete cover coliseum and exhibit wings of Kentucky State Fairgrounds.

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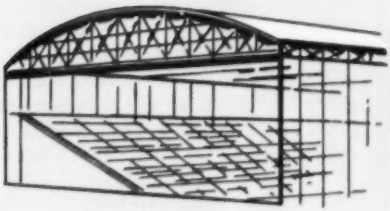
GENERAL CONTRACTOR
Virginia Engineering Co.
ROOF DECK APPLICATOR
J. B. Eurell Company

- **SIMPLIFIED** roof design combines structural deck and insulation *at one cost.*
- **FIRE-SAFE** perlite concrete cuts insurance rates, assures durability—can't rot or decay.
- **LIGHT WEIGHT** of deck permitted 295-ft. clear span in coliseum building.
- **PERMANENT** form board provides attractive, light-reflective ceiling. No painting required.

PERLITE
insulation with the permanence of
CONCRETE



Easily placed on pitched roofs

Perlite insulating concrete adapts to any roof—flat, curved, pitched. Specify it over formboards, metal decks, structural concrete, or over integral forms such as metal lath and paper-backed wire mesh. Write for booklet, "Light Structural Perlite Concrete Roof Decks."

PERLITE INSTITUTE 45 West 45th Street New York 36, N. Y.

ASTM elections

New officers of American Society for Testing Materials for the coming year, as announced at the ASTM 59th annual meeting, Atlantic City, June 17-22, are: Rudolph A. Schatzel, president; Kenneth B. Woods, vice-president; and Miles N. Clair, Howard C. Cross, George H. Harnden, R. R. Litehiser, and Charles R. Stock, directors.

Mr. Schatzel, vice-president, Rome Cable Corp., has been associated with the wire industry since 1924. He has distinguished himself in research and development work on electrical cable insulations, particularly rubber and plastics, and previously held top executive position with the General Cable Corp.

Professor Woods began his association with Purdue University in 1939 as assistant professor of highway engineering, and was appointed head of the School of Engineering in July, 1954. In addition to his academic duties, Professor Woods has been engaged in large-scale engineering work and research for both Canadian and United States government agencies as well as for railroad and other industrial concerns.

Mr. Clair is president of Thompson & Lichtner Co., Brookline, Mass. He has been instrumental in the development of lightweight concrete roof slabs and the use of concrete made with fine and coarse cinders for structural purposes. His firm has been associated with U.S. and foreign construction projects.

Mr. Cross has been closely associated with research on metals for service at elevated temperatures for more than 30 years. At present he is chief of the research division, Battelle Memorial Institute, Columbus, Ohio.

Mr. Litehiser became engineer of tests for the Ohio Department of Highways in 1930, and has served continuously except for one year with the New York State Crushed Stone Assn. and World War II army service. He is also active in the Highway Research Board and American Assn. of State Highway Officials.

Mr. Harnden is a materials and processes consultant for General Electric Co., Schenectady, N.Y. Mr. Stock is senior group leader of the physical measurements laboratories of American Cyanamid's Stamford Laboratories.

New bridge to be prestressed

The City of Philadelphia has recommended that contracts be awarded for a new prestressed concrete bridge to be known as the Gorgas Lane Bridge. It is estimated that the cost saving will be 20 percent over steel design.

The approved design for the Gorgas Lane Bridge specifies a cast in place, simple span, T-beam bridge on a 1550-ft radius with superelevation, meeting all Bureau of Public Roads criteria. The bridge crosses a ravine with piers varying from 20 to 80 ft; there are two spans of 74 ft and five spans of 120 ft. Design calls for a four-lane structure with a total width of 68 ft; the bridge is designed for H20-S16 loading. The depth of span ratio is 1 to 17 with a construction depth saving of over 4 ft in comparison to the steel bridge design.

Perlite Institute elects officers

At the seventh annual meeting of the Perlite Institute, four new officers were elected. Elected president was J. C. Kingsbury, vice-president of F. E. Schundler and Co., Inc., Joliet, Ill. Elected vice-president was Kirk E. Hazelton, assistant general manager, Perlite Division of Great Lakes Carbon Corp., Chicago. New directors are C. Robert McCormick, vice-president, Whittemore Co., Boston; and Lewis Williams, president, Perlite Industries of Arizona, Inc., Phoenix.

National exposition

There will be a national exposition of new industrial products and methods at the Detroit Artillery Armory, Detroit, Mich., Oct. 22-26, 1956. It is sponsored by National New Products, New Methods, and Patents Exhibit, Inc., in a nonprofit effort to bring together the engineer, manufacturer, and new ideas.

Construction-education meeting

The joint cooperative committee of the American Society for Engineering Education and the Associated General Contractors of America met at Iowa State College, Ames, on June 30 in connection with the summer school on construction education being conducted by the ASEE Civil Engineering Division.

Committee co-chairmen were Prof. Frank W. Stubbs, Jr., Purdue University, Lafayette, Ind., and William A. Klinger, Sioux City, Iowa.

The joint cooperative committee was formed recently to provide a means for the consideration of mutual problems in the field of engineering education, and the training of young men for positions in the construction industry.

ACI members on the committee were Walter L. Couse, Detroit, and Manley Osgood, Ann Arbor, Mich.

New method of measuring pavement deflection

A photographic method of measuring the deflection of a road surface under the wheels of a moving vehicle is now being developed at Ohio State University. It was proposed there in 1954 by Prof. Robert F. Baker, research engineer in the university's engineering experiment station, and Prof. Robert D. Turpin, now at the University of Texas.

The photographic process requires no instruments to be set into the pavement. Strips of tape are applied to the surface of the highway for use as "targets," and are photographed by a special stereoscopic camera. A second photo is made as a loaded vehicle passes over the pavement. The resulting photographs show minute differences in location of the target images on the successive negatives, which are then printed on glass plates.

The differences are invisible to the naked eye, and are measured at Perkins Observatory, near Delaware, Ohio, on a Gaertner measuring engine, a device used to determine size and locations of stars on astronomical plates. The measuring engine is accurate to 2 or 3 microns. The ultimate objective is to develop information on effects of heavy axle loads on the structural life of both flexible and rigid pavements.

LOOKING AHEAD

September 18-20, 1956—American Railway Bridge and Building Assn., Chicago, Ill.

September 25-26, 1956—35th Annual Fall Meeting and chapter presidents' conference, Producers' Council, Inc., Wade Park Manor Hotel, Cleveland, Ohio.

October 15-19, 1956—Convention American Society of Civil Engineers, Hotel William Penn, Pittsburgh, Pa.

October 19-20, 1956—Southeastern Regional Meeting, Society of American Military Engineers, Atlanta, Ga.

October 22-24, 1956—Seventh National Conference on Standards and 38th Annual Meeting, American Standards Assn., Hotel Roosevelt, New York, N.Y.

October 22-26, 1956—44th National Safety Congress and Exposition, National Safety Council, Conrad Hilton, Congress, Morrison, and La Salle hotels, Chicago, Ill.

October 23-25, 1956—Ninth Regional Meeting, American Concrete Institute, Sheraton-Mt. Royal Hotel, Montreal, Canada

November 12-19, 1956—8th Annual Convention, American Concrete Pressure Pipe Assn., Castle Harbour Hotel, Tucker's Town, Bermuda.

November 27, 1956—Annual Dinner, American Institute of Consulting Engineers, Waldorf Astoria Hotel, New York, N. Y.

Darex Diary

No. 12 of a series

by Henry L. Kennedy
Member, American Concrete Institute
Manager, Construction Products
Dewey & Almy Chemical Company
Cambridge, Mass.

***** Proportioning of Air-Entrained Concrete**
***** Dispensing DAREX AEA**
***** Measuring Air Content**

Although I have discussed them before, three aspects of air entrainment deserve further discussion.

* * * * *

The proportioning of air-entrained concrete is relatively simple. In most cases, two principal elements must be taken care of: (1) reduce the amount of mixing water per cubic yard of concrete to compensate for the increased consistency that the entrained air causes, and (2) reduce the amount of sand and/or coarse aggregate in the concrete to compensate for the bulking effect of the air that is entrained.

In this approach the cement factor should remain the same in the air-entrained mix as it was in the plain mix and in most cases the slump must also be the same. Until the proportions can be accurately computed, a good rule of thumb for these two adjustments is to reduce the water content by about 30 pounds (3½ gallons) per cubic yard and the sand content by about 100 pounds per cubic yard. This will adjust the cement content for about 4% air.

* * * * *

Since an air entraining agent is a cost item, its introduction into the concrete mix merits care and precision. Inaccurate dispensing can result in too much or too little air. Remember that ordinarily we are adding only a small amount of fluid per bag of cement. To assure proper control, I certainly recommend proper dispensing apparatus.

For stationary plants and paving mixers several dependable dispensers are available. They are made by our own DAREX AEA distributors: J-W Materials, Inc. of Napoleon, Ohio; E. W. Zimmerman of Chicago; and the C. R. Watts Company of Seattle.

* * * * *

Control testing of air-entrained concrete differs from plain concrete in only one respect: the new ingredient, air, should be controlled with the same philosophy we apply to such properties as slump, workability, unit weight, etc. Simple tests can determine precisely the amount of air in the concrete. The most popular technique today is the pressure method—by compressing the entrained air, the only compressible ingredient in the concrete. This simple test is well worth the few minutes it requires. Two very dependable apparatus for this purpose are the Acme Air Meter (E. W. Zimmerman) and the Press-Ur-Meter (Charles R. Watts Co.)

If lightweight concrete is involved, particularly with porous aggregate, it is well to use an apparatus known as the Roll-A-Meter (Charles R. Watts Co.), which determines the air content by displacement instead of by pressure.

Lacking an air meter, air content can be determined by the ASTM gravimetric method C-138-44. The test involves a comparison of the unit weight of the air-entrained concrete with the unit weight of the same concrete air-free.

* * * * *

If you would like more detailed information on these or any other topics, we will be glad to assist you in any way possible.

DA
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CHEMICAL COMPANY
DIVISION OF W R GRACE & CO
GRACE
Cambridge 40, Massachusetts; San Leandro, California; Montreal 32, Canada

ISO committee to discuss concrete terminology

Technical Committee 71, Concrete and Reinforced Concrete, of the International Organization for Standardization, will meet Oct. 9-10, 1956, in Vienna, Austria, to discuss projects now being developed by the committee. The two projects are to standardize the terminology for concrete construction and the standardization of specimens for concrete tests.

To date, the committee has completed a draft proposal on terminology in English and German, and a draft proposal for the standardization of the measurement and making of concrete specimens. The first draft of the proposal on terminology was distributed to ISO member organizations in 1953 and has been under continuous study since that time. A proposed draft for the standardization of testing methods has been under study since 1954.

L. J. Mensch

L. J. Mensch, structural engineer, Evanston, Ill., died June 14. Mr. Mensch was born and educated in Austria, and came to this country shortly after the turn of the century as representative of a French engineering firm. He later went into business for himself.

He is considered among the foremost pioneers in the field of reinforced concrete, both in design and construction. He was the author of one book and wrote many articles, concerned largely with composite column design and deflections and vibrations in buildings.

Otto Graf

Dr. Otto Graf, well known German engineer, died recently after a long illness. He was the founder of the Research and Materials Testing Laboratory of Architecture—Otto Graf Institute—at the Polytechnic Institute, Stuttgart, Germany, and the Department of Documents for Building Technology of the *Deutsches Bauzentrum e.V.*

Dr. Graf, who held two honorary doctorates in engineering, was the author of many articles concerning building materials and their properties. He had been a member of ACI since 1949.

PROFESSIONAL CARD

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Phillips appointed

Appointment of William B. Phillips as vice-president of operations and administration, The Master Builders Co., Division of American-Marietta Co., Cleveland, was announced recently.

Errata

In the paper "Autogenous Healing of Cement Paste," by Kenneth R. Lauer and Floyd O. Slate, June JOURNAL, the following changes should be made.

p. 1088—The quantity under the radical sign is equal to s, the standard deviation.

—o—

In "Building Frames in Prestressed Concrete," by David P. Billington, June JOURNAL, the following changes should be made.

p. 1066—In Fig. 1c, title should read "area of negative bending (A)." In Fig. 1d title should read "area of positive bending (B)."

p. 1070—The second line of text material should read in part "... Δw_a will be negative."

p. 1072—"protection, and by diagonal tension." should follow "tendon" in statement 1.

p. 1074—In the third and fourth equations on the page "Z_t" should be used in place of "z."

p. 1076—In the second equation "Z_b" should be used in place of "Z."

p. 1081—Fourth entry in column 2 should read "$d_y d_z$" instead of "$d_y d_z$."

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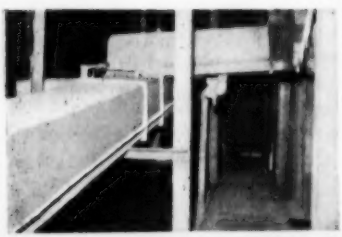

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Who's Who This Month

Subcommittee I, ACI Committee 325

"Considerations for Construction of Subgrades and Subbases for Rigid Pavement," p. 145, is the report of Subcommittee I, ACI Committee 325.

K. B. Woods, Purdue University, is chairman of the subcommittee. Other members are: Henry Aaron, Civil Aeronautics Administration; Robert Horonjeff, University of California; L. A. Palmer, Bureau of Yards and Docks, Department of the Navy; G. S. Paxson, Oregon State Highway Department; and T. B. Pringle, office of the chief of engineers, Department of the Army.

Phil M. Ferguson

Phil M. Ferguson, chairman, Department of Civil Engineering, University of Texas, Austin, gives "Some Implications of Recent Diagonal Tension Tests," p. 157.

An ACI member since 1930, Professor Ferguson is a director of the Institute and is a member of the Technical Activities Committee; ACI Committee 115, Research; 315, Detailing Reinforced Concrete Structures; 318, Standard Building Code; and ACI-ASCE Committee 321, Design of Reinforced Concrete Slabs.

After graduating from the University of Texas in 1922 and receiving master's degrees from the University of Texas in 1923 and the University of Wisconsin in 1924, he spent several years with Dwight P. Robinson and Co., New York, in structural design of power plants and industrial buildings and construction of hotels and apartment buildings.

Professor Ferguson returned to the University of Texas as associate professor in the field of structures and materials in 1928. He became professor in 1939 and was made chairman of the civil engineering department in 1943.

N. C. Ludwig and S. A. Pence

"Conduction Calorimeter for Measuring Heat of Hydration of Portland Cement at Elevated Temperatures and Pressures," p. 173, is co-authored by N. C. Ludwig, research associate, Universal Atlas Cement Co., Gary, Ind., and S. A. Pence, senior engineer, mechanical engineering department, Schlumberger Well Surveying Corp., Houston, Texas.

Mr. Ludwig graduated from Illinois Institute of Technology (then Lewis Institute) in 1931 with a BS in electrical engineering and from the University of Chicago in 1936 with an MS in physics.

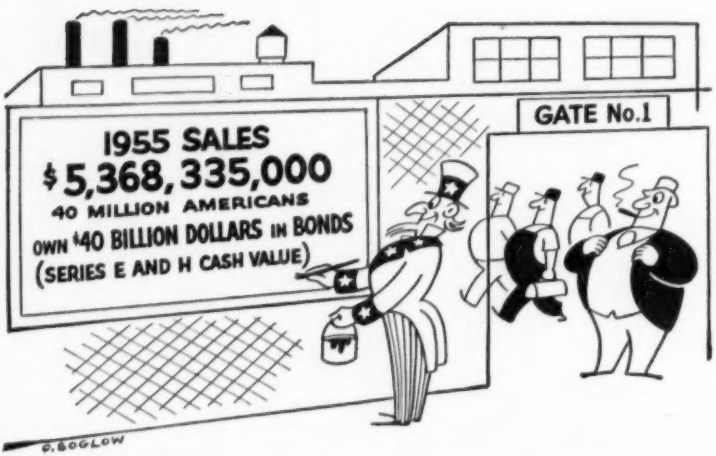
He was employed as an instructor in physics at the Lewis Institute, 1932-37; research engineer, U. S. Steel Corp. of New Jersey, 1937-39; and then research engineer, research section leader, and research associate, Universal Atlas Cement Co., 1939 to the present time. His major interest has been oil well cements, and he has been the author of a number of patents and papers, along with aiding in specification work, in this field.

Mr. Pence graduated from Purdue University with a BS in chemical engineering in 1942. He joined the research laboratories of the Universal Atlas Cement Co. in 1949, following military service, and served as a research engineer and as a section leader until 1955.

C. L. Handa and O. P. Chadha

"Bhakra Dam—Design and Construction Features," p. 185, is presented by C. L. Handa and O. P. Chadha.

Mr. Handa has been director, Bhakra Dam Designs Directorate, New Delhi, since 1952. Prior to this, Mr. Handa was director, Irrigation and Power Research Institute, Punjab, for 4 years. During this period he was associated with a team of scientists and research workers who evolved test procedures for confirming designs of hydraulic structures. Ear-



SAVINGS BOND BUSINESS IS GOOD

and Good for Business

Cash sales of Series E and Series H Bonds in 1955 hit a ten year peak: $5,368,335,000; 10% over 1954, and 23% higher than 1953.

Sales of E and H Bonds exceeded total redemptions of both series (maturities and cashings) by $716,834,000; up 61% over 1954.

Sales of Series H Bonds—the current income bond sold only to individuals—exceeded $1 billion for the first time in any year since their introduction in mid-1952.

As of December 31, 1955, the cash value of E and H Bonds held by 40,000,000 individuals totaled more than $40 billion—the highest amount on record.

Between May, 1951, and December, 1955, Series E Bonds with a face value of $19.9 billion, had reached maturity. Of these, bondholders still held approximately 70%—$13.9 billion—under the optional automatic extension terms.

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lier in his career, he was director of designs in Punjab and was associated with many irrigation projects in West Punjab.

Mr. Handa has been a member of ACI since 1945. He is also a member of ASCE and the Institution of Engineers, India. He graduated with first-class honors from the University of Roorkee, India, in 1928.

Mr. Chadha, senior member, Bhakra Dam Designs Directorate, collaborated in designing the mass concrete of Bhakra Dam along with other construction and design experts. He has had intensive training in the International Engineering Co., Denver, as a representative of the Punjab Government.

Mr. Chadha is an honor graduate of a Lahore engineering college and an associate member of ASCE.

Cevdet Z. Erzen

"An Expression for Creep and Its Application to Prestressed Concrete," p. 205, introduces Cevdet Z. Erzen, structural engineer, Devenco, New York City.

Dr. Erzen received his BS in 1941 and MS in 1942 in civil engineering from the University of Illinois. After working for Sanderson and Porter, New York, and Universal Oil Products Co. and Harza Engineering Co., Chicago, he returned to the University of Illinois and received a master's degree in mathematics in 1945.

He worked for Erik Floor and Associates, and public utility companies, Chicago, as a structural and hydraulic engineer and then returned to the University of Illinois where he received his PhD in theoretical and applied mechanics.

In February, 1950, he became an instructor in the Engineering Mechanics Department, New York University, and in September, 1950, he became assistant professor, University of Connecticut, where he remained until 1953. Subsequently he joined Ammann and Whitney as structural designer.

Dr. Erzen taught at Cornell University from September, 1954, to June, 1955, as assistant professor and then returned to Ammann and Whitney to work on special types of structures until July, 1956.

Myron L. Goral

Myron L. Goral, director of research, Rockwin Prestressed Concrete Corp., Los Angeles, tells about "Empirical Time-Strength Relations of Concrete," p. 215.

Mr. Goral received a BS in CE from the University of Illinois in 1942. He then began work for General Electric Corp., Bridgeport, Conn., in the industrial engineering department. In the evening he taught calculus at the Bridgeport Engineering Institute. Later he was employed by Airadio, Inc., Stamford, Conn., setting up progressive assembly lines for specialized electronic equipment. In 1944 Mr. Goral went into general contracting in Los Angeles. He taught construction costs and estimating for the UCLA engineering extension.

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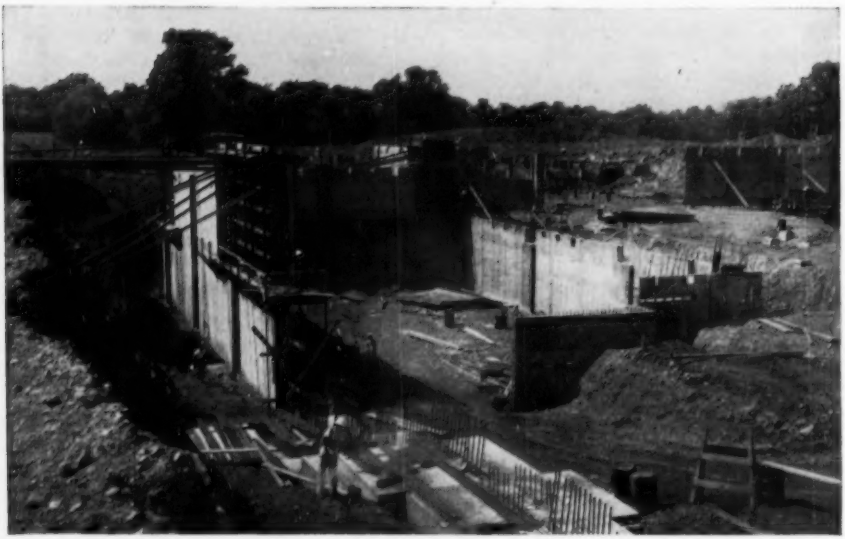

Foundations Laid for 500,000-sq ft Office Building

Architects for the new office building are Skidmore, Owings & Merrill; general contractor: Turner Construction Co. Both are New York firms.

A NEW office building for Connecticut General Life Insurance Company is now rising in the rolling country five miles from downtown Hartford. The new building will contain 500,000 sq ft of floor space and provide accommodations for 3000 employees.

Basically the structure will be a long horizontal stretch of three unencumbered floors, with no interior columns, no permanent floor-to-ceiling partitions, and long lines of heat- and glare-absorbing glass windows. A four-story wing adjoins the main structure.

Shown here is a section of the foundation being built. More than 1000 tons of Bethlehem Reinforcing Bars were placed in this portion of the new building.

Bethlehem bars, used on so many important concreting jobs, are made exclusively from new-billet steel of known analysis. They come in size ranges from Numbers 3 to 11, with deformations meeting ASTM Spec. A-305. They are cut to length and bent in our shops, and reach the job bundled and tagged, with bar lists included, ready for instant placing.

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Honor Roll

February 1—June 30, 1956

The leaders in "member-getting" remain the same as last month but with an increase in credits for the top three. Jose L. Capacete advanced to 30 credits, Federico Barona de la O to 10, and W. H. Armstrong now has 8 credits. Jacob J. Creskoff and James A. McCarthy tie for fourth place with 6 credits.

. New ACI members stem from various sources, however the greatest number are prompted to membership by persons already on the membership rolls of the Institute. They realize the applicant will receive the last word pertinent to the manufacture and use of concrete through the medium of the ACI JOURNAL and other Institute publications.

Jose L. Capacete 30
Federico Barona de la O 10
W. H. Armstrong 8
Jacob J. Creskoff 6
James A. McCarthy 6
S. E. Acker 5
George M. Brief 5
J. W. Kelly 5
George F. Bishop 4
George L. Blanchard 4
Arthur N. L. Chiu 4
Phil M. Ferguson 4
Charles W. Payne 4
Walter H. Price 4
Harry C. Saxe 4
Howard Simpson 4
Ellis S. Vieser 4
Koker Al-Asady 3
W. S. Burke 3
Daniel M. Cashdan 3
M. A. Craven 3
Samuel Hobbs 3
E. L. Howard, Jr. 3
L. M. Legatski 3
Ignacio Martin B. 3
Newlin D. Morgan, Jr. 3
Gene M. Nordby 3
K. E. Whitman 3
G. W. Bernard 2
S. L. Burns 2
T. J. Cavanagh 2
Howard F. Christensen 2
Miles N. Clair 2
Anthony J. Costanza 2
Claudio Creamer G. 2
Roger D. deCossio 2
Julius Dorfman 2
William J. Eney 2
Donald R. Frost 2
J. Guillermo Galvan 2
Gerald K. Gillan 2
Martin J. Gutzwiller 2
Myle J. Holley, Jr. 2
H. N. Howe 2
M. W. Huggins 2
J. E. Jellick 2
Henry L. Kennedy 2
M. H. Kubba 2
John B. McConville 2
R. H. Mahimtura 2
George T. Mahoney 2
Elbert Drew Mayes 2
L. J. Meszaros 2
A. F. Moore 2
Chia Muktabhant 2
Henry L. Neve 2
Adrian Pauw 2
H. C. Pfannkucke 2
Abdur-Rahman S. Rasul 2
Leo E. Rivkind 2
Melchor Rodriguez C. 2
C. H. Scholer 2
C. W. N. Sexton 2
Theodore Sheafer 2
Mandrup Skeie 2
Delbert Smith 2
G. B. Southworth 2
Ralph E. Spears 2
L. J. Sullivan 2
Emin Veral 2
Joseph J. Waddell 2
Thomas J. Whitten 2

St. Clair appointed by contractors

James D. St. Clair has been appointed executive secretary of the Concrete Contractors' Assn. of Greater Chicago. Formerly engineer for the Cook County, (Ill.) Highway Department, his new duties will include coordinating of committees, and aiding in labor relations. Mr. St. Clair will also stage annual shows and outings for the organization, which represents management in the concrete industry.

New Members

The Board of Direction approved 75 Individual applications, 1 Corporation, 13 Juniors, and 6 Students. Considering losses due to deaths, resignations, and nonpayment of dues the total membership on July 1, 1956, was 7934. The total net gain for the first six months of 1956 is 547.

Individual

ABENDROTH, EMIL A., Milwaukee, Wis. (Vice-Pres. & Chf. Engr., Worden Allen Co.)
ANDERSON, GEORGE M., Minneapolis, Minn. (Struct. Engr., Thorshov Cerng, Inc.)
BADER, JOHN A., Cleveland, Ohio (Chf. Sales Engr., Intrusion-Prepakt, Inc.)
BAER, RUBEN J., Chicago, Ill. (Struct. Engr.)
BAIME, WILLIAM B., Skokie, Ill. (Proj. Mgr., Sobel & Stein, Archs., Chicago, Ill.)
BAUGHAN, JOHN J., Cooksville, Canada (Engr., Quality Control & Res. Dir., Argo Block Co., Ltd.)
BECKEE, W. RANDLE, Wyandotte, Mich. (Concr. Tech., Prod. Supv., Harris Concrete & Supply Co., Dearborn, Mich.)
BOLE, JAMES R., Long Beach, Calif. (Civil, Cons. & Struct. Engr.)
BRECKENRIDGE, R. H., Dallas, Texas (Ind. Res. Analyst, Texas Power & Light Co.)
BUNAS, ARTHUR J., Sacramento, Calif. (Hd. Struct. & Arch. Section, Design Unit, Regional Office, USBR, Dept. of Interior.)
BURNETT, FREDERICK C., Agoura, Calif. (Sr. Engr., North American Aviation, Inc., Atomics International, Canoga Park, Calif.)
CERUTTI, H. P., Pittsburg, Pa. (Mgr. & Chf. Engr., Steel Forms Dept., Blaw-Knox Equipment Div., Blaw-Knox Co.)
COOPER, FRANK DAVID, Golf, Ill. (Chf. Struct. Engr., Laramore & Douglass, Inc., Chicago, Ill.)
CORGAN, JACK, Dallas, Texas (Arch.)
CORNELL, CHARLES, Saugatuck, Conn. (Builder)
CORTOQUERA, RAMON, Río Piedras, Puerto Rico (Field Engr., Buck, Seifert & Jost, Santurce, Puerto Rico)
CROSSETT, CHRISTOPHER W., Abington, Pa. (Struct. Field Engr., PCA, Philadelphia, Pa.)
CUTTING, MALCOLM M., Cleveland, Ohio (Arch. & Supv. of Constr., Richard, Hawley, Cutting & Associates, Inc.)
DARBY, WILLIAM D., Jr., Milwaukee, Wis. (Partner, Darby, Bogner & Assocs.)
DENIZE, CLEMENT FRANCOIS, New York, N. Y. (Struct. Designer, Tippetts-Abbett-McCarthy-Stratton)
DUNCAN, CHARLES G., Brooklyn, N. Y. (Gen. Supt. of Constr., Board of Education, City of New York)
DURDEN, JOHN T., Wheeling, W. Va. (Proj. Mgr., Southeastern Const. Co.)
FRANZEN, EARL T., LaGrange, Ill. (Engr. of Bridges, Chicago Rock Island & Pacific R. R., Chicago, Ill.)
FRIESEN, HELLMUTH, Bonn a. Rh., Germany (Arch.)
GRIETENS, MAXIMIL, Cheyenne, Wyo., Wyoming Highway Dept.)
GRIFFIN, BERT E., Tulsa, Okla. (Arch., and Struct. Designer, Koberling & Brandborg, Archs.)
GROSS, GEORGE, New York, N. Y. (Engr., Ammann & Whitney, Cons. Engrs.)
HEINEN, JOHN A., Salihli, Turkey (Concr. Engr., Tippetts-Abbett-McCarthy-Stratton, New York, N. Y.)
HELLER, GEORGE W., Minneapolis, Minn. (Engr. & Est., Johnson, Drake & Piper, Inc.)
HLADIK, GEORGE JIRI, Miami, Fla. (Arch.)
HOFFMAN, LEE, Beaverton, Oregon (General Contr.)
HOUCK, DOAN R., Cincinnati, Ohio (Partner, Struct. Design, Cordes, Pressler, Houck & Assocs., Archs. & Engrs.)
JAEGER, THOMAS A., Dresden, Germany, D. D. R. (Dipl. Engr., Technische Hochschule Dresden)
JOHNSON, K. R., Atlanta, Ga. (Stud. Engr.)
JONES, BYRON E., Whittier, Calif. (East Metropolitan Field Man, Los Angeles, PCA, Chicago, Ill.)
LE MIEUX, GUY F., New Orleans, La. (Cons. Engr.)
LIIMATAINEN, AARO, A. R. O., Utanen, Finland (Field Engr., Concrete Constr., Oulujoki Oy)
LUND, ROBERT K., Great Falls, Montana (Arch.)
MANDEL, A. ALBERT, Miami, Fla. (Assoc. Engr., Loyd Frank Vann Associates)
MATHIAS, FRED J., Orrville, Ohio (Partner, Mathias & Whitson)
MCADAMS, DANIEL H., Philadelphia, Pa.) (Engr., Bell Telephone Co. of Pa.)
MCCLURE, R. H., Yonkers, N. Y. (Pres. & Gen. Mgr., Omnia Constr. Corp.)
MEADER, CARL C., Jackson, Mich. (Gen. Constr. Supt., Consumers Power Co.)
MELSTAD, HARVEY THOMAS, Cheyenne, Wyo. (Stud. Civil Engrg., So. Dakota State College)
MEYER, JOHN E., Minneapolis, Minn. (Cons. Struct. Engr.)
MILBURN, GEORGE, Vancouver, Canada (Pres., Skeena Lumber Co., Ltd.)
MILKE, HERMANN, Soest/Westphalia, Germany (Director General, Hermann Milke KG, Soest, Constrs., Road Bldrs.)
MOON, ROBERT, J., Monrovia, Calif. (Struct. Engr.)
MORALES C., ANDRES, Bogota, Colombia (Chf. Engr. for Rockefeller Foundation Program)
NISHIZAWA, NORIAKI, Tokyo, Japan (Concr. Res. Engr., Technical Lab., Central Research Inst. of Electric Power Industry)
ORTIZ A., MIGUEL A., Pina, Prov. de Camaguey, Cuba (C. E.)
PARK, KIL SOO, Seoul, Korea (Chf. of Constr., Engrg. Bureau, Korean National Railroad)
PERRY, ROBERT G., Flint, Mich. (Constr. Engr., J. T. Sharpensteen)
PFAFF, ROBERT FREDERICK, New York, N. Y. (Struct. Engr., National Biscuit Co.)
PLANT, ARTHUR F., Detroit, Mich. (Vice-Pres., The Austin Co.)
PRICE, HAROLD A., Napa, Calif. (Mgr., Struct. Conc. Prods. Div., Basalt Rock Co., Inc.)
QUIGLEY, RAYMOND L., Palos Verdes Estates, Calif. (Owner & Partner, South Bay Engrg. Co., Civil Engrs., & Quigley & Clark, Archs. & Engrs.)
RIEDEL, RICHARD W., Baton Rouge, La. (Chf. C. E., The Dow Chemical Co.)
ROUBAL, RAYMOND E., St. Paul, Minn. (Struct. Engr., R. E. Roubal Co., Engrs. & Gen. Contrs.)
SALCEDO, HUMBERTO, Barranquilla, Colombia (C. E., Gomzalez y Salcedo Ltd., Archs., Engrs. & Contrs.)
SEPTON, W., Toronto, Canada (Cons. Engr.)
SEKI, SHINGO, Tokyo, Japan (Chf. Concr. Res. Engr., Concrete Section, Technical Lab., Central Research Institute of Electric Power Industry)
SHNABEL, MOSHE, Tel-Aviv, Israel (Cons. Engr., Struct.)
SIDWELL, CARROLL V., Tulsa, Okla. (Cons. Engr., Petroleum Engrg.)
SIEBERT, DOUGLAS MARCUS, Nidola, Northern Rhodesia (Branch Mgr., Rhodesian Engrg. & Steel Constr. Co., Ltd.)
SMITH, H. W., Los Angeles, Calif. (Chf. Engr., Bell Constr. Co., Inc.)
STEVENS, JAMES C., Don Mills, Canada (Design Engr., W. S. Atkins & Associates, Ltd., Toronto, Canada)
TAKAHASHI, JOSEPH J., Beverly Hills, Calif. (C. E., Harold L. Epstein, Struct. Engr.)

TEAGUE, RICHARD W., St. Cloud, Minn. (City Engr., City of St. Cloud)
WAGGONER, WILLIAM L., Nashville, Tenn. (Struct. Engr., Barge, Waggoner & Summer, Inc., Engrs.)
WESTBERRY, ELVIS C., Jacksonville, Fla. (Engrg. Designer, Mech., Struct., & Arch., National Container Corp.)
WHEELER, NORRIS G., Enid, Okla. (Arch., Wheeler & Wheeler, Archs.)
WHITE, JACK D., Denver, Colo. (Plans Checking Engr., City & County of Denver)
WILSON, ROBERT L., Wichita, Kansas (Arch. Engr., Garrold Griffin)
YAMADA, JUNJI, 26 Tokyo, Japan (Dir. of Engrg., Chf. Engr., Lab. of Concrete, The Public Works Research Institute, Ministry of Constr.)

Corporation

GOBERNACION DEL DISTRICTO FEDERAL, Direction of Municipal Public Works, Caracas, Venezuela (Silvestre Castellanos)

Junior

AQUIRRE, R., CARLOS, Lima, Peru (Head, Civil Engr. Dept., A. y F. Wiese, S. A.)
BENNETT, CHARLES H., DePere, Wis. (Engr., F. Hurlbut Co., Green Bay, Wis.)
BOLJEN, FRED P., Richmond Hill, N. Y. (Designer, Steel & Concr., Bechtel Assoc., New York, N. Y.)
CHIADO, PAUL S., Chicago, Ill. (Struct. Designer, Skidmore, Owings & Merrill)
ECKERT, ARTHUR F. J., Dayton, Ohio (Hq. AMC Installation Div., MCAIE, Wright Patterson AFB)
HEAVLIN, HAROLD D., Kansas City, Mo. (Struct. Engr., Black & Veatch, Cons. Engrs.)
MCDONALD, ALEX, New York, N. Y. (Designer, The Preload Co.)
MERCADO, JOSE LORA, Santurce, Puerto Rico (C. E., Sucn. Hector A. Pinero, Hato Rey, Puerto Rico)
MILLS, GEORGE W., Chester, Va. (Job Engr., Tidewater Constr. Corp., Norfolk, Va.)
MOORE, CHARLES DEAN, San Antonio, Texas (Grad. Stud. in Civil Engrg., Univ. of Texas)
SOTTHEWES, STEVE, Oakville, Canada (Field Engr., St. Lawrence Cement Co.)
STOVER, ALLAN T., Claremont, Calif. (Stud. Engr., Univ. of Calif., Berkeley)
VALENTIN RODRIGUEL, RAFAEL, Rio Piedras, Puerto Rico (Design Engr., Puerto Rico Aqueduct & Sewer Authority, San Juan, Puerto Rico)

Student

BOWER, JOHN E., Champaign, Ill. (Univ. of Ill.)
KHABBAZ, RAMEZ N., Troy, New York (Rensselaer Poly. Inst.)
MATLOOB, FARID N., Austin, Texas (Univ. of Texas)
PIZZUTELLO, DONALD HENRY, Mt. Vernon, N. Y. (Univ. of Notre Dame)
PRIEDEMAN, JOHN S., Ithaca, N. Y. (Cornell Univ.)
WIDULSKI, WILLIAM PAUL, Mt. Vernon, N. Y. (Univ. of Notre Dame)

Wuerpel and Vroman elected

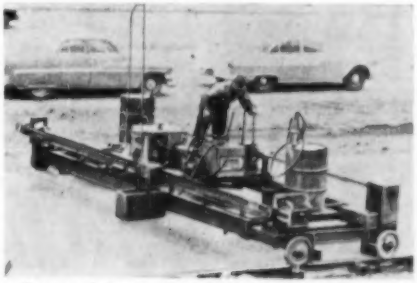
Charles E. Wuerpel and Lawrence H. Vroman have both been elected vice-presidents of the Marquette Cement Manufacturing Co., Chicago. Mr. Wuerpel continues as the head of the technical department, and Mr. Vroman continues as manager of engineering and construction.

Tools, Materials, Services

Under this heading note is made of producer literature of presumed technical interest (and available from its source for the asking) to ACI users of tools, equipment, materials, accessories, and special services.

Automatic spray curing machines

A line of automatic spray curing machines, said to provide uniform coverage of concrete in one pass, has been announced by General Road Machines, Inc. The machine travels along the form line behind the finisher. Capable of spraying wax or resin based materials as well as white-pigmented curing compounds, it has a single, track-mounted spray head which passes transversely across the surface of the plastic concrete. The spray head, driven by a hydraulic motor through V-belts and a roller chain, travels the full width of the machine. Automatic traversing cycles can be set from 1 to 10 per min.



Powered by a 12-hp, 2-cylinder, air-cooled engine driving through oversized transmissions, the spray machine is said to be capable of traction speeds from 5½ to 30 ft per min. Transmissions provide three speeds forward and three speeds reverse, with instant reverse under load.

Automatic spray curing machines are available with adjustable end frames, in widths of 10 to 15 and 20 to 25 ft. Other widths are also available upon request. Ball and roller bearings are used throughout and steering clutches are standard. Single or double flanged, or rubber-faced track wheels are available in sets or in combinations.—General Road Machines, Inc., Niles, Ohio.

Electrified cellular concrete floor system

A precast structural concrete floor system with underfloor electrical distribution for office buildings has been developed by Flexicore Co., Inc., and Conduflor Corp. This system uses the hollow cells in precast concrete floor units as electric raceways and provides electrical floor outlet spacing as close as 5 1/3 in. It also permits the installation

of new outlets at any time in the future, at nearly any location on the floor.

The floor is electrified by metal feeder ducts which are installed on top of the structural floor in a 1½-in. concrete fill. The feeder ducts run at right angles to and feed the cells in the floor which are continuous from one end of the building to the other.

The structural floor is precast, permitting high-speed construction on structural steel, reinforced concrete frame, or masonry bearing walls. Fittings for the wiring system are prefabricated and are installed quickly after slabs are erected.—The Flexicore Co., Inc., 1932 E. Monument Ave., Dayton, Ohio.

Platform extension

Morgen Manufacturing Co. has announced a platform extension for scaffolding which makes it possible to extend the laborer's platform so that it is wide enough to wheel materials with carts or wheelbarrows. The scaffolding consists of a 10-ft base section with interchangeable extensions of 2, 6, and 10 ft. Extensions fit into base section in sleeve-like fashion. Each piece is light enough to be handled by one man. Any height tower can be easily and quickly erected by two men without the use of tools or bolts.—Morgen Manufacturing Co., 117 West Third, Yankton, S. D.

Lightweight aggregates

A bulletin of the Rutgers University Bureau of Mineral Research covers and lists available New Jersey deposits of minerals deemed available and convertible to lightweight products. The report includes data on shales, slates, and clay for the commercial production of lightweight aggregates for use in concrete. Samples from each were tested to determine whether or not they would produce suitable aggregates. The report contains maps showing the locations of these deposits, provides information on their mineral composition, and presents the results of hundreds of sintering and expanding tests on these materials as well as the properties of the lightweight aggregates produced through these processes.—Rutgers University, New Brunswick, N. J.

Forming equipment

A 24-page general catalog describes concrete forming equipment manufactured by Symons Clamp & Manufacturing Co., including forms and accessory hardware. Products are illustrated by job photos. Detailed drawings and specifications are included. The catalog divides these jobs into high walls, curved walls, heavy construction, battered walls, and jobs using specific types of forms.

A special section is devoted to facts about safety shores and square column clamps.—Symons Clamp & Manufacturing Co., 4249 Diversey Ave., Chicago 39, Ill.

ACL cement manufacturing process

Allis-Chalmers Manufacturing Co. has set up a pilot plant for the purpose of testing, demonstrating, and developing untried raw materials and new techniques in cement making with the ACL (Allis-Chalmers Lellep) traveling grate process.

Essentially the process consists of three parts—a pelletizing operation, a traveling grate for drying and partially burning the pellets, and a short kiln for final burning. Conventional wet and dry cement manufacturing processes use only long kilns. The ACL system takes up only a little more than half the space of conventional units. It is said to feature uniform pellets from raw material to finished clinker, and low fuel consumption and dust loss.

Data obtained from pilot plant operation will aid engineers to predetermine actual operating conditions of a full-scale ACL cement plant while still in the planning stage.

Pelletizing the raw mix is claimed to lock in from start to finish the original blend of the various components, preventing segregation of the finely ground raw materials. Because the pellets remain uniform throughout the process, "flushing" in the kiln is minimized and more uniform burning conditions result. Pellet size is from ¼ to ¾ in.

A full-scale ACL kiln will range from 120 to 175 ft long, with 10½ to 13 ft inside diameter. The ACL traveling grate will add a maximum of about 85 ft to the length, which is still well below modern conventional kilns, which range from 300 to 500 ft long, with 10 to 12 ft inside diameter.

The ACL traveling grate replaces what is normally referred to as the feed end section of a conventional kiln. The grate enclosure is divided into two sections—the drying and preburning chambers. The pellets first enter the drying chamber where they are exposed to a downdraft flow of gases that enter at a temperature of 500 to 600 F. The gases dry the pellets uniformly and are exhausted to atmosphere at 200 to 250 F.

The pellets next enter the preburning chamber where they are exposed to a downdraft of hot kiln exit gases at 1700 to 1800 F. Here the pellets are partially calcined (25 to 35 percent) and become hard before entering the feed end of the rotary kiln.

It is this double pass of the gases through the pellet bed that results in the low dust loss without additional dust collectors. The second pass of gases occurs in the drying chamber where they come in intimate contact with moist pellets, which effectively removes the dust. Dust loss in the ACL system is said to be less than 1 percent per weight of feed.—Allis-Chalmers Manufacturing Co., Milwaukee 1, Wis.

Adjustable steel beam supports formwork

A product developed in Europe called the "Spanall" is an adjustable steel beam with a built-in camber used as temporary support for formwork in reinforced concrete structures. Spanall supports can be adjusted with only one screw before placement. According to the distributer, Safway Steel Scaffolds, Inc., the camber of the supports can be adjusted accurately to within 1/32 in.

The beam supports are essentially open-web joists that can be varied in span as well as in

Membership in the American Concrete Institute

To facilitate prospective members in joining the Institute, membership application forms are provided. Present Members may aid by bringing these forms to the attention of those who may profit from membership advantages. The grades of membership are described overleaf.

All who have an interest in concrete are eligible for membership.

Members have at hand in Institute publications the most complete fund of knowledge on concrete. The ACI JOURNAL provides them with the latest information and ACI special publications provide them with the complete picture of specific problems. Through conventions, and regional and area meetings they are afforded the opportunity of meeting those whose experiences provide the new information, and of exchanging ideas with them.

Opportunity for service is present in technical committee activity, in contributions, or only comments, to the ACI JOURNAL, or in reviewing technical publications for material of interest to the membership.

ACI's world-wide membership is growing in extent and participation—traveling a common road toward better, more economical and durable concrete structures. ACI provides a common ground in the search for and use of new "working tools" in concrete design, manufacture, and erection—and its interpretation.

(cut here)

Board of Direction, American Concrete Institute **Date** _____
18263 W. McNichols Road
Detroit 19, Michigan

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The undersigned hereby applies for _____ **membership**
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For Corporation Membership, ACI representative will be _____

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Signature _____

For our records, please complete both sides of application.

EXCERPTS FROM BYLAWS: ARTICLE I—MEMBERS

Section 1. This Institute shall consist of Members, Corporation Members, Contributing Members, Junior Members, Student Members, and Honorary Members interested in furthering the Institute's objects as set forth in its Charter.

Sec. 2. A Member shall be an individual.

A Corporation Member shall be a firm, corporation, society, agency of government or other organization. A Corporation Member shall name one individual as its representative who will enjoy all membership rights and privileges.

A Contributing Member shall be an individual, firm, corporation, society, agency of government, or other organization wishing to give larger support to Institute activities through the payment of larger dues. Contributing Members, other than individuals, shall name representatives as do Corporation Members.

A Junior Member shall be a person less than 28 years old.

A Student Member shall be less than 28 years old and a student in residence at a recognized technical or engineering school.

An Honorary Member shall be a person of eminence in the field of the Institute's interest, or one who has performed extraordinarily meritorious service to the Institute.

Sec. 3. All classes of Members except Honorary Members and Student Members, shall be proposed by at least one Member of the Institute and elected by a two-thirds vote of the Board of Direction. An Honorary Member shall be elected by unanimous vote of the Board of Direction. A Student Member shall be proposed by a member of his school's faculty, who need not be a Member of the Institute, and elected by a two-thirds vote of the Board of Direction.

Sec. 4. All Members shall have all rights and privileges of membership as determined by the Board of Direction except that a Junior or Student Member shall not vote nor hold office. The status of a Student Member shall change automatically to that of Junior Member on the first anniversary of his membership succeeding the date on which he ceases to be a student in residence. The status of a Junior Member shall be changed to that of Member on the first anniversary of his membership after he becomes 28 years of age.

Sec. 5. Applications for and resignations from Membership and requests for change of representatives of Corporation or Contributing Memberships shall be presented in writing to the Secretary-Treasurer. Resignations may be accepted only from Members whose dues are not more than 60 days in arrears, except by special action of the Board of Direction.

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camber. The sections are designed to support concrete formwork in spans up to 29 ft 6 in. without intermediate shoring. Weighing about 8 lb per ft for building construction, a typical joist consists of latticed steel end sections, into which telescope central web-plate sections.—Safway Steel Scaffolds, Inc., 57 East Canfield Ave., Detroit 1, Mich.

Concrete finisher

A four-blade concrete finisher featuring adjustable pitch blades has been announced by Superior Cement Tool Co. Adjustability of blade pitch compensates for all the various surface conditions encountered; it eliminates blade changing and speeds up finishing. Other features include sealed and lifetime lubricated gear box, Timken main bearings, 2-hp air-cooled engine, stationary guard ring, cast steel tangential arm braces, and mercury safety switch.—Superior Cement Tool Co., 11616 Wright Rd., Lynwood, Calif.

Floor patch material

Development of a floor patching material has been announced by the Building Products Division of L. Sonneborn Sons, Inc. Called Sonopatch, the material is described as a non-bituminous powdered mixture which sets up in 30 min under normal drying conditions. It is said to yield a compressive strength of over 2000 psi after a few hours. After 24 hrs it is said to harden sufficiently to support loads under steel casters.

For application, it is mixed with water and poured in place to any desired thickness. It is said to be self-leveling, nonshrinking, and to bond firmly. Depending on drying conditions, it can be painted over within 24 to 48 hrs. Sonopatch also can be used in bolt setting. About 4½ lb will repair a floor section 1 ft square and ½ in. deep.—Building Products Division, L. Sonneborn Sons, Inc., 404 Fourth Ave., New York 17, N. Y.

Troweling machine

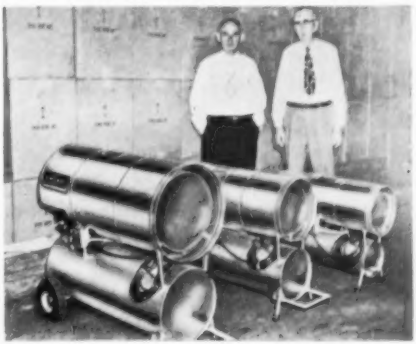
A new concrete troweling machine has been introduced by Champion Manufacturing Co. Called the Con-Trow'l it has a 36-in. fixed guard ring, reversible trowels, brake-band type clutch for smooth take-off, and trowel tilt controls at the handle. It is powered by a Briggs-Stratton Model 8 engine.—Champion Manufacturing Co., 2028 Washington Ave., Saint Louis 3, Mo.

Drilling machine

Molco Drilling Machines, Inc., has announced a hydraulically operated concrete and masonry drilling machine. The model V Mole machine incorporates a swivel head that allows holes to be drilled at any angle. Special diamond faced self-sharpening core bits drill 1- to 14-in. diameter holes through reinforced concrete, tile, asphalt, and other hard building materials. A compact hydraulic system feeds the drill bit into the work surface automatically. Machine can be driven with either an electric motor or gasoline engine.—Molco Drilling Machines, Inc., 1100 20th St., N. W., Washington 6, D. C.

One-man vibrator

UniViber, a plug-in electric vibrator, is being produced by Viber Co. Basic design of this one-man vibrator includes motor housed in the head and flexible casing used as handle and switch located in the casing in easy reach of operator. Motor-in-head design eliminates the need for an extra workman to drag the motor after the operator. Wires leading to the motor are protected by the flexible casing which also functions as a handle. No moving part is housed in this casing, giving flexibility to its use as a handle.—Viber Co., 726 S. Flower St., Burbank, Calif.



Portable heaters

A line of portable heaters for the light and heavy construction fields and industrial uses is now being produced by Silent Glow Oil Burner Corp. Lightweight and portable, the heaters are designed to furnish and maintain even temperatures throughout a room or area. The line of heaters furnishes from 120,000 to 300,000 Btu's of recirculating heat, depending upon the model.—The Silent Glow Oil Burner Corp., Hartford, Conn.

Scaffold-shoring application

During construction of the Massachusetts Turnpike, Consolidated Builders, Inc., worked out an unusual assembly of steel pipe scaffolding which proved to be a great time saver. Space between frames was reduced to 2 ft. The contractor fabricated stringers from steel angle and welded Universal Gravity-Lock assemblies to them. These were used in place of standard bracing to attach the stringer to the main scaffolding and achieve proper spacing. This scaffold was then wedged against the piers of the bridge, thus eliminating the need for great amounts of sway bracing.—Universal Manufacturing Corp., 1937 North St., Zelienople, Pa.

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May Jl. '56

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Basis for Classifying Deleterious Characteristics of Concrete Aggregate Materials—E. G. Swenson and V. Chaly
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June Jl. '56

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DISCUSSION PROCEEDINGS V. 53

Discussion closes November 1, 1956

July Jl. '56

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Aug. Jl. '56

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